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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/702,682	11/05/2003	Fangli Hao	LAM1P131C2	1118
22434	7590	04/28/2004	EXAMINER	
BEYER WEAVER & THOMAS LLP			VERSTEEG, STEVEN H	
P.O. BOX 778			ART UNIT	
BERKELEY, CA 94704-0778			PAPER NUMBER	

1753

DATE MAILED: 04/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/702,682	Applicant(s) HAO ET AL. 	
	Examiner Steven H VerSteeg	Art Unit 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-24 is/are allowed.
- 6) ☒ Claim(s) 1-10, 14, 15 and 25 is/are rejected.
- 7) ☒ Claim(s) 11-13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/5/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: the patent number of the parent application needs inserted at [0001].

Appropriate correction is required.

Claim Objections

2. Claims 19 and 25 are objected to because of the following informalities: "when said sputtering" in claim 19 at line 2 needs deleted; and "saidrotating" should be "said rotating" in claim 25 at line 4. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 10, 14, and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 10 recites the limitation "the process conditions" in line 1. There is insufficient antecedent basis for this limitation in the claim. I suggest making claim 10 depend from claim 9 to overcome the rejection.

6. Claim 14 recites the limitation "the confinement ring and electrode" in line 1. There is insufficient antecedent basis for this limitation in the claim. I suggest making claim 14 depend from claim 11 to overcome the rejection.

7. Claim 15 recites the limitation "the confinement ring and electrode" in line 1. There is insufficient antecedent basis for this limitation in the claim. I suggest making claim 15 depend from claim 11 to overcome the rejection.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claim 25 is rejected under 35 U.S.C. 102(b) as being anticipated by US 4,478,701 to Welch et al. (Welch).

10. For claim 25, Applicant requires a method of moving a confinement ring or electrode inside a plasma processing chamber comprising rotating a first gear, rotating a second gear via the first gear, moving a shaft along a linear path via the rotating second gear so that the shaft moves in a first direction when the gear is rotated clockwise and moves in a second direction when the gear moving counterclockwise, and moving the ring or electrode up and down along the path via the moving shaft.

11. Welch discloses a sputtering apparatus (abstract) comprising a target electrode 44 that is moved up and down a shaft 43 by rotating a first gear 80 that rotates a second gear (Figure 2). When the assembly is used, the gears would rotate and the target would move linearly up and down.

12. Claims 1-10 are rejected under 35 U.S.C. 102(a) as being anticipated by WO 99/67807 to Lenz.

13. For claim 1, Applicant requires a plasma processing method comprising confining a plasma with a confinement ring, processing a substrate with the plasma, and moving the ring in a linear direction during the processing in order to effect the processing.

14. Lenz discloses a cam-based arrangement in which a confinement ring is moved to fine tune the pressure drop across the confinement ring area during plasma processing (pg. 7, l. 24-29).

15. For claim 2, Applicant requires the confinement ring to be moved by a gear drive assembly. Lenz discloses a gear drive assembly for moving the ring (Figure 4).

16. For claim 3, Applicant requires the confinement ring to be moved in the linear direction in order to control a pressure at a surface of the substrate. As noted above, Lenz discloses the limitation.

17. For claim 4, Applicant requires moving the ring in one direction to increase pressure and moving in the opposite direction to decrease pressure. Lenz discloses the limitation (pg. 4, l. 14-23).

18. For claim 5, Applicant requires a gap between the ring and a plane defined by the substrate during the processing with the size of the gap changed during processing by moving the ring in the linear direction. As can be seen from Figure 1, the confinement ring allows for a gap between it and the substrate.

19. For claim 6, Applicant requires the processing to be etching. For claim 7, Applicant requires the process to be deposition. Lenz discloses that the apparatus can be for deposition or etching (pg. 1).

20. For claim 8, Applicant requires the substrate to be held stationary. Lenz discloses that the substrate is stationary (Figure 1).

21. For claim 9, Applicant requires monitoring the process conditions above the substrate during processing and moving the ring in response thereto. For claim 10, Applicant requires the processing conditions to be monitored to be pressure or temperature. Lenz moves the ring in response to pressure measurements (pg. 4).

Allowable Subject Matter

22. Claims 16-24 are allowed.

23. Claims 14 and 15 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

24. Claims 11-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

25. The following is a statement of reasons for the indication of allowable subject matter: it is neither anticipated nor obvious over the prior art of record to have a plasma processing method as claimed by Applicant in claims 11, 14, 15, or 16.

26. Lenz is described above and discloses moving a confinement ring during processing, but does not disclose moving an electrode. Welch is described above and discloses moving an

electrode, but not a confinement ring. Welch does not disclose moving the electrode during processing. Combining the references at most would yield moving a confinement ring during processing and moving an electrode (although not necessarily during processing). There is no motivation to combine the references unless hindsight reasoning is used. Placing the electrode of Welch in Lenz would only be possible if one used Applicant's claimed invention as a guide. Likewise, placing the ring of Lenz in Welch would only be possible if one used Applicant's claimed invention as a guide.

General Information

For general status inquiries on applications not having received a first action on the merits, please contact the Technology Center 1700 receptionist at (571) 272-1700.

For inquiries involving Recovery of lost papers & cases, sending out missing papers, resetting shortened statutory periods, or for restarting the shortened statutory period for response, please contact Denis Boyd at (571) 272-0992.

For general inquiries such as fees, hours of operation, and employee location, please contact the Technology Center 1700 receptionist at (571) 272-1300.

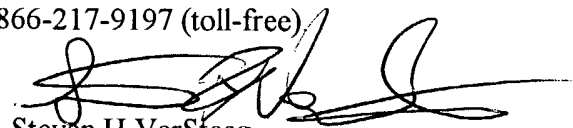
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H VerSteeg whose telephone number is (571) 272-1348. The examiner can normally be reached on Mon - Thurs (6:30 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1753

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)



Steven H VerSteeg
Primary Examiner
Art Unit 1753

shv
April 26, 2004